

APPENDIX B

TRAINING AIDS AND DEVICES

The use of devices in marksmanship training programs are important factors because they may allow the gunner to get an idea of what actual combat is like. The training devices designed for the MG are the M19 blank firing attachment, the multiple integrated liner engagement system, the sighting bar, and the M3 recoil amplifier barrel used with plastic ammunition.

B-1. BLANK FIRING ATTACHMENT

The M19 BFA was developed to permit the MG to fire the M1A1 blank cartridge in the automatic fire mode. The BFA is an easy to install, reliable device that allows the MG to be used more realistically during an FTX. The M19 BFA weighs 15.5 pounds and can be installed using either a crescent wrench or the blank/live round discriminator (a component of the BFA that has been designed to serve as a wrench). The design of the M19 will not allow a live round to be loaded while the blank/live round discriminator cover is in position. Normal headspace and timing must be made when firing blank rounds using the M19 (Figure B-1).

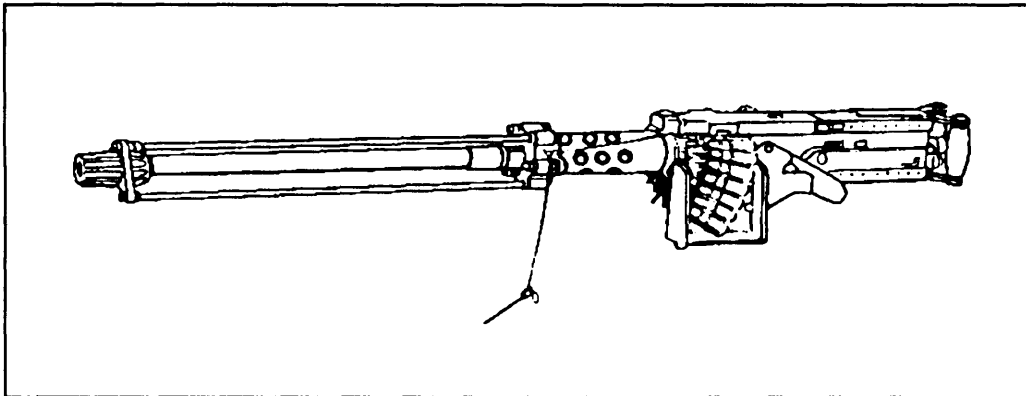


Figure B-1. M19 BFA mounted on MG.

WARNING

The flash of the M1A1 round fired with the M19 BFA at night is extremely bright. It could cause temporary night blindness, and night vision devices may be temporarily disabled.

B-2. MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM

The MILES transmitter has been developed for the MG as well as for many other weapons. It consists of a lightweight laser transmitter that sends coded hit/kill messages whenever blank rounds are fired. The MILES transmitter is normally used as part of an M113 APC MILES kit; however, it can also be used on truck- or ground-mounted machine guns with modifications of the detector straps and the combat vehicle kill indicator (CVKI) light (Figure B-2).

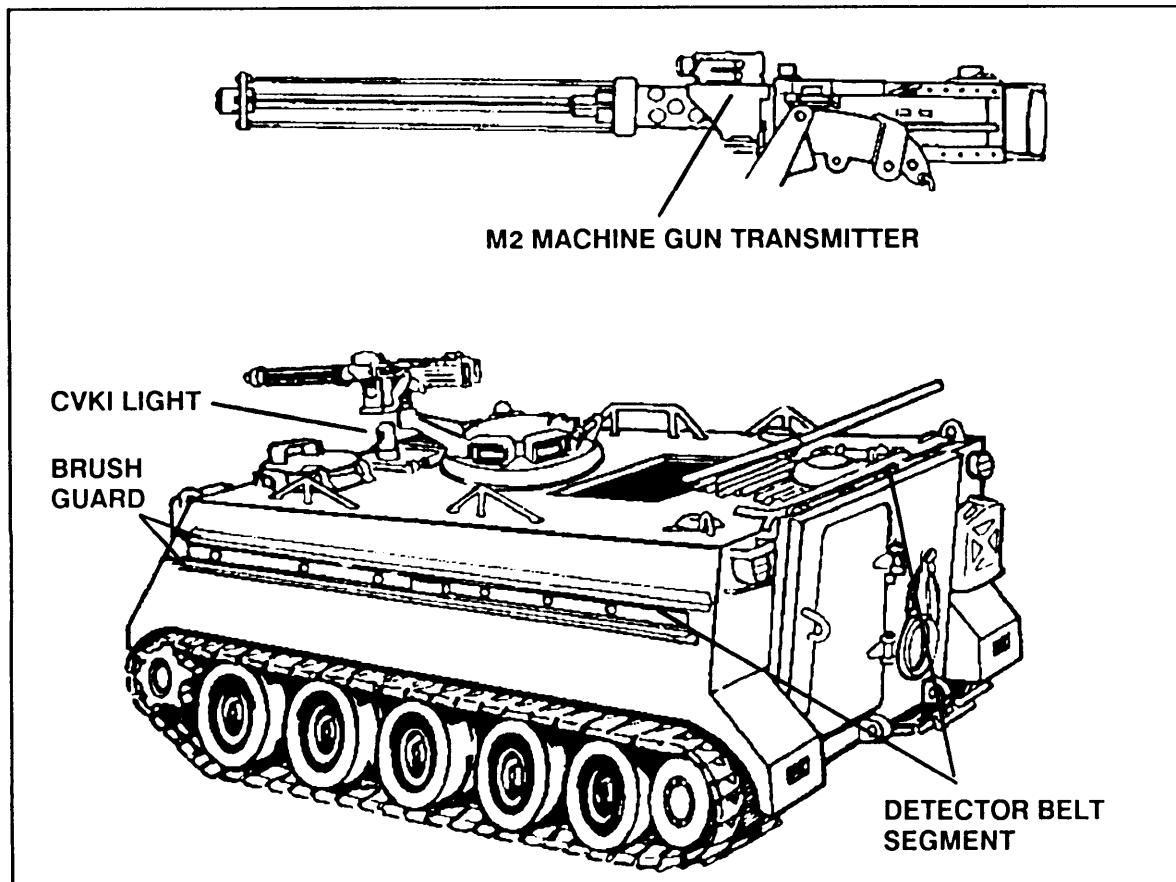


Figure B-2. Components of the M113 APC MILES kit.

a. Inspecting and Servicing the MILES Transmitter. Remove any dirt or oil from the lens using lens paper or a soft, dry cloth. Take care not to scratch the lens. Inspect the foam microphone cover; if it is wet or caked with dirt or blank firing residue, clean or replace it. Inspect the transmitter for indications of damage that would prevent normal operations (Figure B-3). Clean all surfaces. Ensure that the orange key is present. Use DA Form 2404 to report any damage to the transmitter.

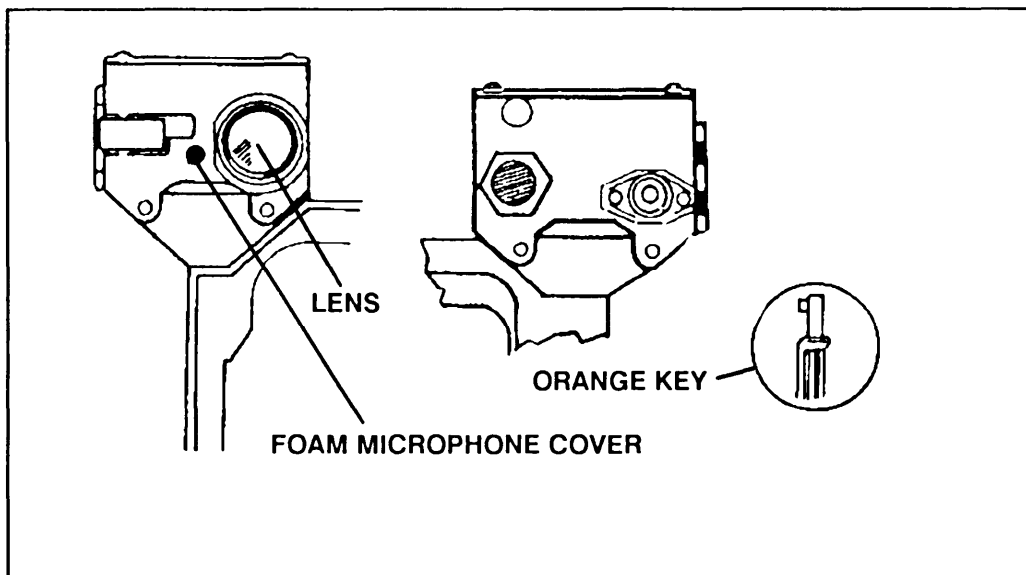


Figure B-3. Inspection of the MILES transmitter.

b. **Placing the Battery into the Transmitter.** Use the correct battery (NSN 6135-01-063-1978, BA 3090/U, 9V, alkaline); it will last about 100 hours. Flip open the latch; open the battery door and insert the battery; press the door closed; then press the latch closed (Figure B-4).

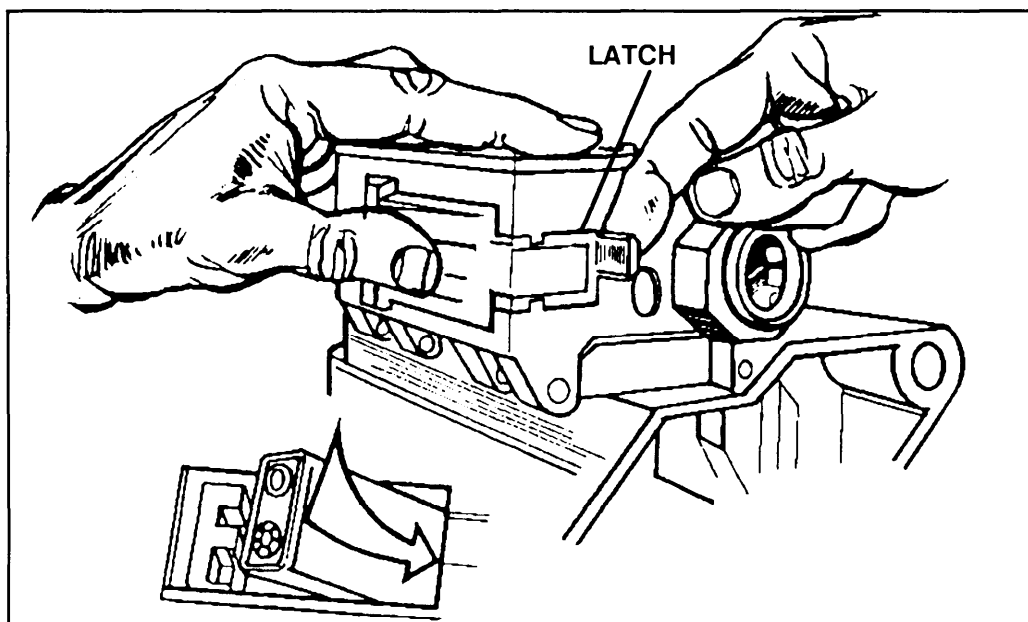


Figure B-4. Battery insertion.

c. **Attaching the Transmitter to the Machine Gun.** Attach the machine gun to its mount. Attach the M19 BFA to the machine gun. Unscrew the knob from the side of the transmitter bracket; swing the bottom plate down; and place the transmitter on the barrel support, flush against the receiver. The lip on the back of the mounting bracket must sit behind the barrel cooling bracket. Swing the bottom plate back up against the transmitter mounting bracket and tighten the knob securely with your hand (Figure B-5).

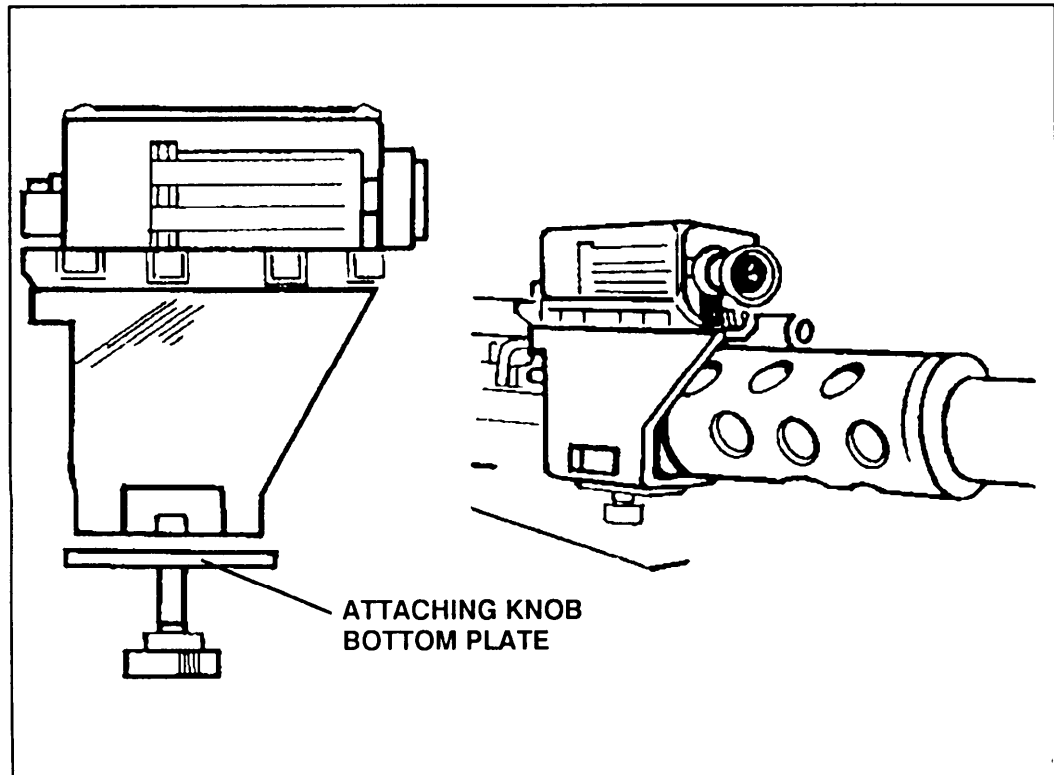


Figure B-5. MILES transmitter attachment.

d. **Operating the Transmitter.** Ensure that the M19 BFA is correctly mounted. Turn the orange key to WEAPON ON. Load the machine gun with M1A1 blank ammunition only (Figure B-6). Fire normally. The sound of the blanks firing will trigger the transmitter. The transmitter will work only as long as the supply of blank ammunition lasts. Once a day, use a clean cloth to remove blank fire residue from the transmitter lens. To test the transmitter, fire a shot burst and watch the firing lamp (Figure B-7). If no light, replace the battery and test again. If still no light, replace the transmitter. Use DA Form 2404 to report the information.

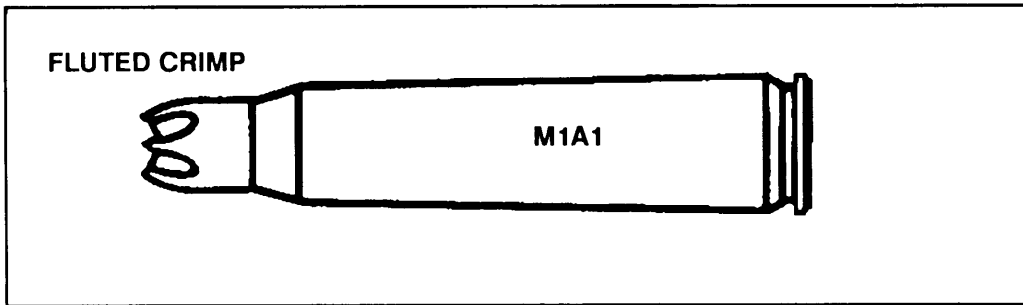


Figure B-6. Proper blank ammunition to use with M19 BFA.

WARNING
Do not use ball ammunition or M1 blank ammunition with the BFA. Use only M1A1 blanks with the fluted, crimped case mouth.

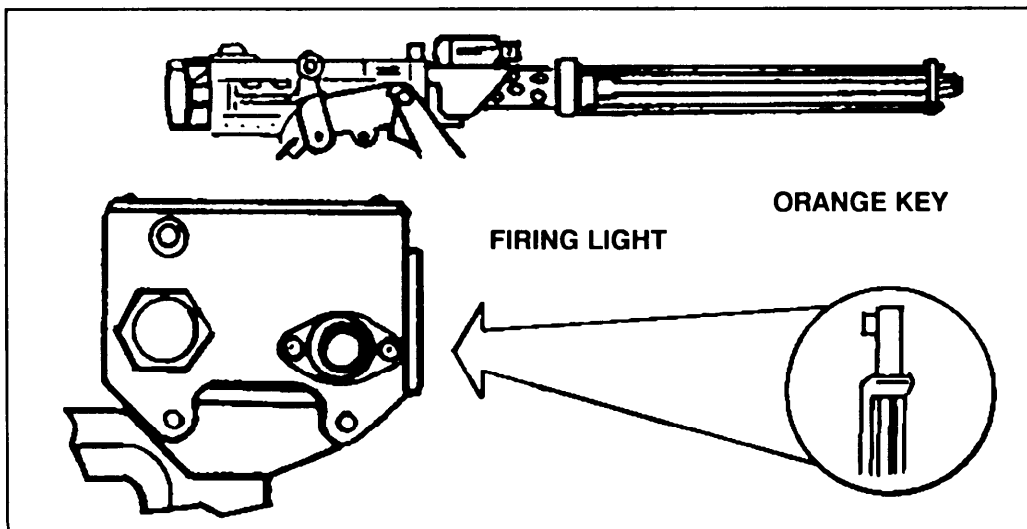


Figure B-7. Operation of the MILES transmitter.

e. **Aligning the Transmitter to the Machine Gun.** The transmitter must be aligned in the dry fire mode, using the dry fire trigger cable. To align the transmitter, you need a soldier wearing a MILES helmet and torso harness. The gun should already be mounted on a tripod and have the T&E attached.

(1) Position the soldier 50 to 75 meters away from the machine gun. Have him place a green controller key in his MILES receptacle and turn the key to the CONTROLLER position.

(2) Connect the trigger cable assembly to the receptacle on the rear of the MILES transmitter. Use the controller key to reset the system.

(3) Insert an orange weapon key into the transmitter receptacle and turn to WEAPON ON.

(4) Fire at the soldier by pressing the trigger cable button. Traverse the gun left and right, up and down, until the soldier's buzzer signals a "near miss." Hold the gun in that position.

(5) While he is being fired on, have the soldier move to his right until his buzzer stops. Have him mark that location.

(6) Have the soldier move to his left until the buzzer stops again. Have him mark that location.

(7) Have the soldier estimate the center between the two marks, and stand there.

(8) Cease fire. Without moving the barrel of the machine gun, adjust the sights until the soldier is seen through the rear sight aperture.

(9) Begin firing again and move the barrel up and down, noticing where the buzzer stops. Estimate the center of this up and down area and adjust the sight elevation to that point.

(10) Remove the trigger cable assembly and screw the protective cover onto the transmitter receptacle.

f. **Resetting the Transmitter After a Kill.** Remove the orange key from the transmitter. Use it to silence the "kill" indicator and the CVKI light. The transmitter will not fire with the key removed. When the controller resets the "kill" indicator, turn the transmitter to WEAPON ON and reinsert the orange key. Continue the mission.

g. **Using Precautions.** The following safety considerations apply to the M1A1 blank cartridge:

(1) Never fire blanks directly at personnel within 20 meters of the gun.

(2) Never fire blanks without wearing hearing protection.

(3) Never fire blanks when the temperature is below 0 degrees or above 120 degrees Fahrenheit.

(4) Never stand directly to the side of the weapon muzzle when blanks are fired.

(6) Never fire blanks in bursts in excess of 20 rounds.

(7) Always allow a cooling period between bursts to avoid overheating the gun.

B-3. SIGHTING BAR

The sighting bar is a locally fabricated device used for practicing the sighting and aiming exercise (Figure B-8). Paragraph 5-9 explains its use. This exercise requires the soldiers to look through the peephole and center on the front sight blade. The gunner adjusts the peephole until he is able to align the front sight blade in the center of it. The instructor will

then review and critique the gunner on sight alignment. The device is also equipped with a scaled target for practicing sight picture. Once sight alignment is mastered, the gunner will be required to show a correct sight picture. This is done by adjusting the scaled target until the front sight plate is bottom center of it. Again the instructor will review and critique the gunner. This exercise will continue until the gunner has mastered the technique of sighting and aiming; this requires a lot of practice.

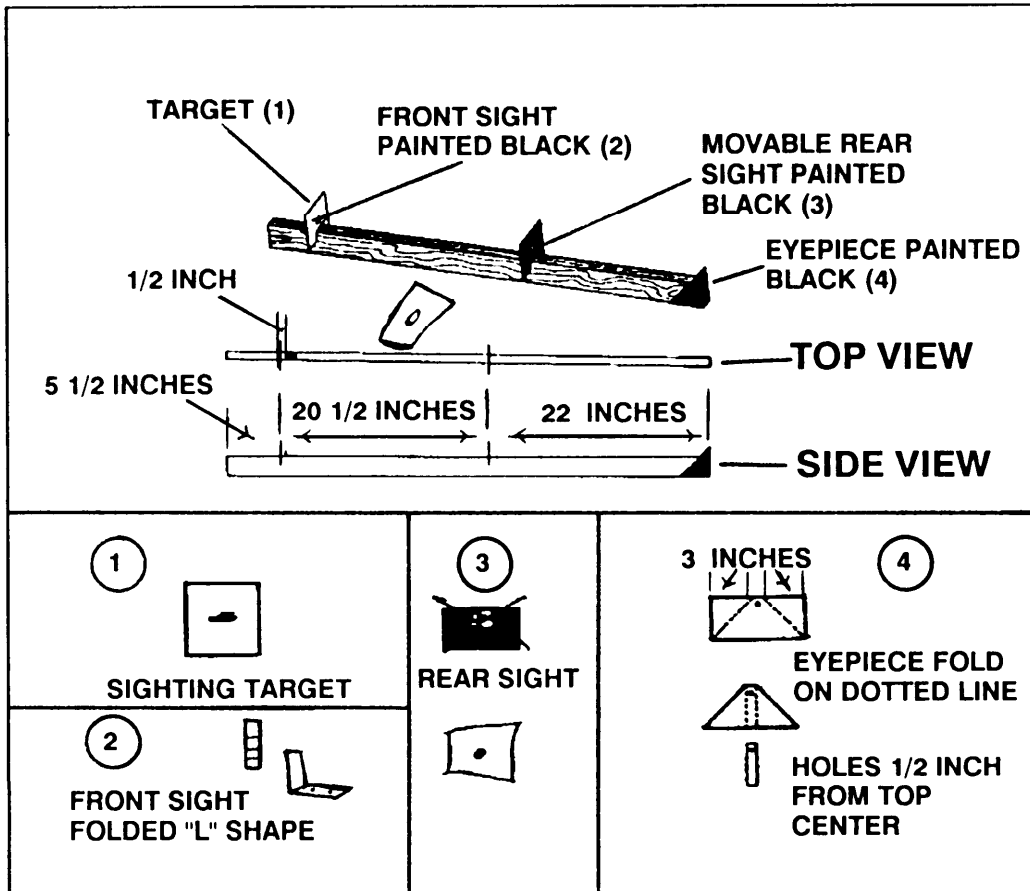


Figure B-8. Sighting bar.

B-4. SHORT RANGE TRAINING AMMUNITION

To augment the use of the caliber .50 ammunition, a new generation of SRTA (the M858 ball and the M860 tracer) has been developed.

a. The caliber .50 ball and tracer cartridges have configurations and dimensions similar to those of the corresponding service rounds; however, the base of the cartridge, which encloses the primer, is made of aluminum. The rest of the case is made of a blue-colored plastic material. The tip of

the tracer projectile is colored red. The complete round weighs about 1.05 ounces and is 5.19 inches long, which is slightly shorter than the service round. The cartridges are linked with M9-type metallic links for use with the MG. Muzzle velocity of the projectile is about 4,000 feet per second. The light weight of the projectile, about 50 grains, and its low sectional density cause its velocity to drop rapidly.

b. The SRTA allows training in small local training areas without fixed training facilities, in MOUT facilities, and in combat training theaters. With its 150-meter usable range, the SRTA can be used on grouping, zeroing, and 10-meter scaled silhouette firing.

WARNING

The SRTA projectile causes considerable damage out to 150 meters and is considered dangerous out to its maximum range of 700 meters.

B-5. M3 RECOIL AMPLIFIER BARREL ASSEMBLY

An M3 RABA (Figure B-9) is used with the machine gun for firing the training ammunition. It is assembled to the gun in the same manner as the standard barrel. The RABA provides the means to boost the power that is required to recoil the barrel and effectively cycle the weapon when relatively underpowered M858 SRTA or M860 SRTA-T are fired in the machine gun.

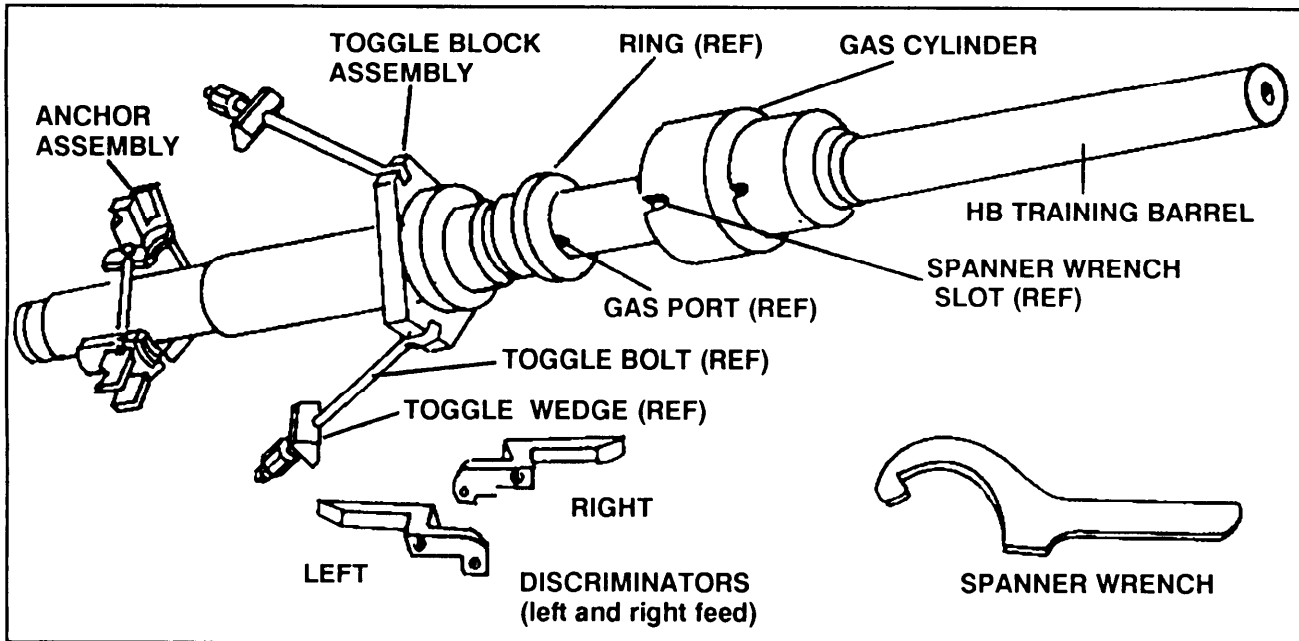


Figure B-9. M3 RABA.